

NEWSLINE

Published weekly for employees of Lawrence Livermore National Laboratory

Friday, August 9, 2002

Vol. 27, No. 31

Coral clues to climate change

By Anne M. Stark

NEWSLINE STAFF WRITER

Tom Guilderson was out at sea 26 days in the Gulf of Alaska and brought back a slew of coral, seawater and sediment samples.

Those samples can tell him the history of at least 250,000 years worth of that part of the ocean.

The water samples that were taken will be examined for their carbon isotope content and will be used to determine how much anthropogenic (fossil fuel) carbon has made it into the ocean in this region.

Guilderson, who works at the Center for Accelerator Mass Spectrometry, along with colleagues from Stanford University and UC Berkeley, was recently awarded a grant from the National Oceanographic and Atmospheric Administration's (NOAA) Ocean Explorer Program.

The study is directed toward measuring elemental and isotopic profiles in deep-sea



PHOTOS COURTESY OF TOM GUILDERSON/CAMS

Top, Tom Guilderson of the Center for Accelerator Mass Spectrometry, displays pieces of bamboo coral and bubblegum coral taken from the ocean floor near the Gulf of Alaska. At left, a piece of bubblegum coral.

corals to better understand climate-ecosystem variability in the Gulf of Alaska. These corals,

See CORAL, page 8

Emergency exercise to test preparedness

On Wednesday morning, LLNL will conduct an emergency exercise designed to demonstrate that the Laboratory's emergency response organizations are prepared to respond to an emergency at the Laboratory.

External mutual aid organizations from Livermore-Pleasanton and Alameda County will also be participating.

See EMERGENCY, page 4

Merced College professors take Laboratory research experience to the classroom

By Stephanie Esposito

NEWSLINE STAFF WRITER

Merced College Professor Doug Kain said that he had two goals he wanted to accomplish while interning in the Biology and Biotechnology Research Program at the Lab this summer.

"I wanted to tune up my skills by participating in current research and working with people who get to do this everyday...secondly, I wanted to be able to apply what I was learning here, to my courses back at Merced," Kain said. "Both goals were reached."

Kain is one of three Merced instructors who spent six weeks this summer working alongside Lab researchers, scientists and technicians as part of the Memorandum of Agreement (MOA) between the

See MERCED, page 8

'Daughter' of PEREGRINE joins fight against cancer

By Stephanie Esposito

NEWSLINE STAFF WRITER

There is a new "daughter method" of PEREGRINE currently being developed by Lab researchers, Christine Hartmann-Siantar told audience members Tuesday during her lecture, "PEREGRINE: Simulations for Radiation Therapy Planning and How Molecular Targeted Radiotherapy Could Cure Metastatic Cancer."

Similar to PEREGRINE, the new system, called Minerva, is expected to offer cancer patients the most accurate method of radiation dosage in order to "target the cancer and spare normal tissues." Researchers are still in the early prototype

See PEREGRINE, page 8

One for the books

Director Emeritus Edward Teller signs copies of his memoirs, "A Twentieth-Century Journey in Science and Politics," for summer students Wednesday. Afterward, Teller fielded questions.



FRANK NUNEZ/TID



Day on the Green 2002

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1983: A Nobel history

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Tour of duty at LLNL

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LAB COMMUNITY NEWS

Weekly Calendar

Technical Meeting Calendar, page 4

Saturday
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There will be a **scheduled power outage** from 7 a.m. to 3 p.m. in the following locations: Bldgs. 131, 141 and 241; Trailers 1401, 1402, 1403, 1404, 1405, 1406, 1407, 1408, 1413, 1449, 1456, 1477, 1478, 1481, 1482, 1460, 2425, 2428 and 2475. Contact: Mark Cardoza, 3-0490.

Tuesday
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LLNL's medical director, Dr. Jim Seward, and former AD Mort Mendelsohn will present **"Update on the Cancer Incidence and Mortality Among LLNL Employees,"** at noon in Bldg. 170, room 1091. Their talk is part of the summer-long Cancer Awareness Campaign.

Wednesday
14

Summer students are invited to a talk on **"Combating Bioterrorism: Scenarios and Science"** at 10 a.m. in bldg. 361 auditorium. Albert Ramponi of Chemistry & Materials Science will discuss assessing a bio-threat, defining the appropriate response strategy, and developing a detection capability against a suite of potential biopathogens. For more information, go to <http://education.llnl.gov/sbb>. Contact: Deborah Lindo, 2-3026.

Thursday
15

The Intel training team will be at the Lab from 9 a.m.-5 p.m., to conduct a **seminar on compiler and software tuning tools**. The seminar will be held in the Bldg. 543 auditorium. Software developers, project leaders and solution architects, from organizations involved in development of high-performance and scalable server applications are encouraged to attend. For the complete agenda and content description, go to <http://www.llnl.gov/computing/training/2002aug15.html>. Contact: LC Hotline, 2-4531.

Up
Coming

LLESA is sponsoring a **"blended drive"** Sept. 3-6, which means donors can give blood and at the same time sign up to be in the National Bone Marrow Registry by providing a blood sample. Employees can participate in the blood drive, the bone marrow drive or both. To learn more about becoming a marrow donor log onto www.marrow.org. To schedule an appointment in advance, go to <http://www.beadonor.com> (company code: LLNL) or call the LLESA Office at 2-9402.

The LLESA **Bowling Networking Group** is hosting a Department Challenge on at noon Saturday, Aug. 17, at Granada Bowl in Livermore. Teams are to be five members of any combination: men, women or mixed. Individual bowlers will be placed on teams. No average is needed. Cost is \$11 per bowler and includes three games, rental shoes and pizza. Please register by Monday. Contact: Pat Chance, 2-2807, or Lisa Szytel, 3-9246,

Computation hosts Then & Now Day

The Computation Directorate will host its Then & Now Day as part of LLNL's 50th Anniversary celebration on Wednesday.

LLNL and Sandia employees, and LLNL contractors, are invited to a talk and panel discussion reflecting on 50 years of Laboratory computing.

Lab Retiree Dick Watson will lead a group presentation "Computing at LLNL, Past and Future" in the Bldg. 123 auditorium from 1:30 to 3 p.m. Co-presenters include John Fletcher on networks, Dieter Fuss on platforms, and Harry Nelson on algorithms and applications.

Computation AD Dona Crawford will provide opening and closing remarks as well. Approximately 125 Lab retirees are expected to attend. Auditorium seating is on a first-come, first-served basis.

The LLNL Computer History Museum remains open every Tuesday and Thursday through the summer, 10 a.m. through 1 p.m. in B 439.

To arrange a visit or group tour at another time, contact Peggy Poggio, 2-5453 or Bing Young, 3-0281.

Diversity Day features cultural arts, food

The annual Diversity Day on the Green returns to the Lab on Thursday, beginning at 11:30 a.m. in the Lab Pool area.

This year's event will feature cultural performances, ethnic cuisine, cultural booths and a contest for best cultural clothing.

Beginning at 11:45 a.m., stage 1 will feature Ballet Afsaneh, which presents the traditional dance, music and poetry of Central Asia and the Mediterranean.

At 12:30 p.m., there will be a performance by the Academy of the Hawaiian Arts, which is known for its hula kahiko, or ancient dance performed in chant format.

On the second stage, beginning at 11:45 a.m., there will be a performance by Motor-Dude Zydeco, a zydeco band directed by John Graham.

At 12:15 p.m., there will be a cultural clothing contest with prizes for the most colorful, most elaborate, most unique and most authentic. To enter, participants should sign up at the cultural clothing booth between 11:30-11:55 a.m.

The final performance on stage 2 will feature salsa music by Rolando Morales Groups.

Ethnic food, offered for sale by several of the Lab's networking groups, will include a Filipino lunch, Afghan lunch, taquitos and



A dancer from Ballet Afsaneh, which is one of the featured groups at Diversity Day.

buffalo burgers.

For more information, contact Michele Cardenas of the Diversity Programs Office, 3-2796.

Awareness campaign features cancer incidence talk

The summer's Cancer Awareness Campaign continues next week with a look at the most recent cancer study done at the Lab.

On Tuesday, Dr. Jim Seward, LLNL medical director, and Mort Mendelsohn, former AD, will offer, "Update on the Cancer Incidence and Mortality Among LLNL Employees." Their talk will be held from noon to 1 p.m. in Bldg. 170, room 1091.

This is the second year a grassroots coalition of employees has organized a Cancer Awareness Campaign at the Lab. This year's campaign has featured talks, a health fair and symbolic walk. The talks continue through Aug. 29 and include:

- "Does Overcooking Meat Pose a Cancer Risk?" by LLNL scientist James L. Felton on Tuesday, Aug. 20, at noon in Bldg. 170, room 1091. He will present research that suggests it might be a can-

cer risk to overcook meat.

- "Prevention, Health Practices and Good Nutrition for Cancer Survivors," by registered dietitian Victoria Holmes Woolery of Kaiser Medical Center on Thursday, Aug. 29, at noon in Bldg. 170, room 1091. She will discuss the role of medical nutrition therapy and intervention for cancer patients.

For more information on the events, contact Mark Costella at 2-8999 or costella2@llnl.gov.

Newslines

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Russian classes to be held

If you travel to Russia or host Russian-speaking visitors, there are beginning, intermediate and advanced level Russian courses (ED7802) beginning in September.

The instructors use a combination of textbooks, workbooks, audiotapes and videotapes to teach skills needed to carry on conversations (or to just ask for directions) with Russian-speaking individuals.

To register, see the online course catalog at https://www-ais.llnl.gov/llnl_only/docs/hr/catalog/. For more information, call Marissa Mertes, 2-4842.

1952 – 2002 MAKING HISTORY, MAKING A DIFFERENCE

Award-winning science and technology

This is an ongoing feature highlighting the Lab's 50-year history. This week we take a look at the year 1983.

The road to the Laboratory's Nobel Prize in physics was a 15-year journey, one that winner Robert Laughlin credits to Livermore's strength in team science.

Laughlin earned his Nobel in 1998, but it was in 1983 that *Physical Review Letters* published his elegant theoretical work explaining the so-called fractional quantum Hall effect. The effect had been experimentally discovered in 1982. Its key surprise is that collective motions of electrons can behave like a fraction of a given electrical charge for one electron. At the time of his breakthrough realization that "it was a fluid problem," Laughlin was a postdoctoral solid-state physicist at the Laboratory, learning the ins and outs of plasma physics and the mathematics of classical hot liquids from H-Division colleagues.

Now a professor at Stanford, Laughlin continues his association with the Laboratory. His work stands as the hallmark of the world-renown science conducted at Livermore, work that has earned hundreds of other scientists, like Laughlin, E.O. Lawrence Awards, Teller medals, distinctions from every world-wide scientific society, and even the Nobel Prize.



AP PHOTO/JONAS EKSTROMER

Robert Laughlin (left) received the Nobel Prize for physics from Swedish King Carl Gustaf XVI at the ceremonies in Stockholm, Sweden, on Dec. 10, 1998.

1983 NOBEL prize

Around the Lab

Brilliant Pebbles

These small, lightweight, and low-cost space-based interceptors were designed to knock out strategic missiles by colliding with them at very high speeds. Under development at the Lab since 1983, Brilliant Pebbles were proposed as the earliest element of the Strategic Defense Initiative to defend against missile attacks.



Around the nation

- Reagan's "Star Wars" speech
- U.S. invades Grenada
- DOE proposes construction of supercollider
- Proton-antiproton collider at CERN produces W^+ , W^- and Z^0 particles

Around the world

- Benigno Aquino killed in Philippines
- The U.S. Embassy in Lebanon is bombed in a terrorist attack which kills 63.

in other

NEWS

Other news around
the Lab, the nation
and the world.

For more of the Lab's rich history, check out the Timeline, located at: <http://www.llnl.gov/timeline/>

Looking for the 50th Anniversary Baby

The Lab Time Capsule Committee is looking for a baby born closest to the Laboratory's 50th anniversary date: Sept. 2, 2002.

The winning baby will receive a gift from Uncle Credit Union and that gift will be buried, along with a copy of the baby's birth certificate, in the Anniversary Time Capsule, to be retrieved 50 years from now!

If you are a Lab employee (mother or father) with a new baby or are expecting a child in the beginning of September, contact Barry Schrader, 3-3567, or schrader2@llnl.gov for more information.

The Time Capsule Burial Ceremony will be held at 4:30 p.m., Sept. 18 outside the Visitor's Center.

Volunteers needed to escort for Community and Family Days

Want to rub elbows with Lab guests? Always dreamed of being a tour guide?

Volunteers are needed during the 50th anniversary event week to assist with escorting duty. Escorts are needed for Community Day, Wednesday, Sept. 18, and again during Family Days, Sept. 21 and 22.

Volunteers for Community Day and Family Days must be L- or Q-cleared. To volunteer for Community Day, call Scott Wilson, 3-3125 or e-mail wilson101@llnl.gov. For Family Days, call Jan Tweed, 2-4597 or e-mail tweed1@llnl.gov.



NEWS YOU CAN USE

Homeless program gets HOME visit

Although the annual Run for HOME and Agency Fair are still more than two months away, HOME committee members have begun to visit select agencies to learn more about the way donations work to improve the quality of life in local communities. Visits are conducted in the spirit of HOME — Helping Others More Effectively.

Site visits help the committee better understand programs that fund shelters for homeless families, teach disadvantaged pre-schoolers, provide adult day-care for Alzheimer's patients and offer many other kinds of community programs.

"LLNL employees and Laboratory contract workers are tremendously generous," said Ted Michels, this year's campaign committee chair. "HOME Campaign donations provide so many agencies with the bulk of their annual funding. We want Lab employees to know that their checks and pledges work hard all year long. McHenry House is just a single example of Lab generosity serving local communities."

On Tuesday, a group of HOME committee members visited Mc Henry House for the Homeless in Tracy. McHenry House, opened in 1987, is celebrating 15 years of service to families and children in need of emergency and transitional housing.

The program also furnishes food, clothing, and counseling/guidance for job placement, health, social services and financial planning. Last year alone, McHenry House served more than 400 families and prepared more than 12,000 meals.

Like many other HOME Campaign agen-



GERRI BRASWELL/COMPUTATION

From left to right: Sue Wiebe, Ember Foley, Becky Frank, Kathy Turnbeaugh, Ted Michels of Computation and Sandra Trejo, McHenry House director.

cies, McHenry House has a mission to empower families to self-sufficiency. Such nonprofit agencies rely on grants and donations for baseline funding, to continue to improve methods of providing assistance, and ultimately, to add to the overall quality of life for many.

Other non-profit agencies and organizations will be featured in future editions of *Newsline* along with complete information on how employees may select agencies and make tax deductible donations.

Michels expects another successful campaign — for the past four years, the Lab has eclipsed the million-dollar mark. "Lab employees and contract workers are exceptionally sensitive to the needs of community-help agencies. They respond with great enthusiasm and kindness."

The Laboratory Services Directorate is sponsoring the annual Run for HOME and Agency Fair, traditional HOME kick-off activities. The Computation Directorate is chairing this year's overall campaign.

Post Office reminder: *Newsline* may be sent only through Mail Services

If you receive *Newsline* or pick up extra copies of the paper for friends and relatives, you are not permitted to address it and mail it through the U.S. Post Office, unless it is placed in a stamped envelope.

Even though *Newsline* bears a "stamp" on its back cover that says "postage paid," it cannot be sent at random through the Post Office. Doing so could result in a loss of Mail Services' mailing contract.

An alternative to sending a copy of *Newsline* to relatives would be to have them log onto the *Newsline* Website, located at <http://www.llnl.gov/llnl/06news/employee.html>. From there a pdf version of *Newsline* may be downloaded. Or, if your relative is a retiree, call Public Affairs at 2-4599 and request that they be put onto the *Newsline* retirees' mailing list.

EMERGENCY

Continued from page 1

Employees at various locations at the Laboratory may be affected. If you are in one of these areas, please follow all directions provided by emergency responders or over the voice paging system. If you hear a "Shelter-in Place" announcement, just remember to stay inside your building or go inside the nearest building. If you are instructed to evacuate, evacuate to your assembly point unless directed elsewhere by the on-scene emergency responders.

Your cooperation is essential to making this important test of our emergency response capabilities at LLNL a success.

Technical Meeting Calendar

Friday
9

DEFENSE & NUCLEAR TECHNOLOGIES

"2002 Annual Certification," by Jim Tyler, D&NT, Tom Shepard, A Division, and Sue Taylor,

DTED. 10:30 a.m., Bldg. 132 auditorium, room 1000 (uncleared area). Contact: Linda Stuart, 3-7001.

Thursday
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LIVERMORE COMPUTING

"Intel Seminar: Compiler and Software Tuning Tools," will include overviews on Intel software products, the Vtune Performance Analyzer, compiler, threading tools and Linpack Optimized. 9 a.m.-5 p.m., Bldg. 543 auditorium (uncleared area). Contact: LC Hotline, 2-4531 or lc-hotline@llnl.gov.

MECHANICAL ENGINEERING

"Novel Method for Precise Focal Length Measurement," by Brian DeBoo and Jose Sasian,

University of Arizona. They will discuss a new technique for precise focal length measurement using a hologram. 9:30 a.m., Bldg. 391, room 1200 (uncleared area). Contact: Scott Lerner, 2-6009.

Friday
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ENERGY & ENVIRONMENT

"Building a Conceptual Groundwater Model for a Coastal Alluvial Aquifer in Northern Oman Based on Chemistry, Isotopes and Noble

Gases," by Constanze E. Weyhenmeyer, Center for Accelerator Mass Spectrometry. 10:30 a.m., Bldg. 543 auditorium (uncleared area). Contact: Camille Vandermeer, 3-2672.

Up
Coming

MONDAY, AUG. 19 -FRIDAY-AUG. 23

The Sixth IBM Scientific Computing User Group (ScicomP) Meeting, hosted by Lawrence Berkeley National Laboratory. Contacts: Bronis de Supinski,

bronis@llnl.gov, or Tom DeBoni, TMDDeBoni@lbl.gov.

AUGUST 22

P&AT COMPUTER SUPPORT CENTER

"Internet and Email Awareness." Topics: Using the Internet, e-mail client considerations, protecting yourself from SPAM, and protecting yourself from e-mail viruses. Also to be covered will be tips on how to make the computing environment at home and at work safe from the "bad guys." Your home computer is just as susceptible as your computer at work. Don't miss this opportunity to become informed. 1-3 p.m., Bldg. 123A Conference Room. To register contact: Donna McCown, 2-5255, or dmc-cown@llnl.gov.

The deadline for the next Technical Meeting Calendar is noon, Wednesday.

NEWS OF NOTE



Changing science culture benefits from work of Sigma Xi

By Jimm Spannagel

NEWSLINE STAFF WRITER

LLNL's chapter of Sigma Xi, the national scientific research society, assembled recently at Concannon Winery for its annual meeting to discuss issues concerning its mission, recognize members' accomplishments and welcome 10 new members.

Sigma Xi's mission is threefold: support education, expand national membership and foster scientific diversity in a changing scientific culture. The society has more than 500 chapters nationally at universities, national laboratories and research institutes with a membership pool of students, active researchers and retired professionals. It also prides itself on 170 Nobel Prize winners.

The society gains 5,000 new members per year. Membership is gained through nomination and decided on the basis of scientific research. Associate members must demonstrate that they have conducted or contributed to notable research. Full member status is granted to those members who have made notable contributions in their respective fields with publication.



MICHAEL IZZO/NEWSLINE

Kathleen McCandless, president of Sigma Xi.

Much of the work published by society members appears in Sigma Xi's research journal *American Scientist*.

Reflecting well on the tenets of the society's mission, the Lab's Sigma Xi chapter is represented by a diverse group of researchers, including individuals from the Nonproliferation Arms Control and International Security Directorate, the Energy & Environment Directorate, National Ignition facility development team and many others.

With promoting education as one of its primary interests, LLNL's chapter provides services for local students in conjunction with the Student Research Academy. These include community talks, lecture series and the "Science on Saturday" program.

The chapter's former president, Ron Weinberg, now serves Sigma Xi at the national level. Its current officers include Kathleen McCandless of the Computing Applications Division, president; David Smith of the Analytical and Nuclear Chemistry Division, vice president; Sasa Bajt of I Division, treasurer; and Anne Lipska-Quinn of Hazards Control, secretary.

New tour program offers community inside view of the Laboratory

By Michael Izzo

NEWSLINE STAFF WRITER

In the three months since the Lab's community tour program was retooled and expanded, the response from the public has been better than anticipated.

Since May, more than 325 people have participated in the tours, which are now offered every Tuesday and Thursday morning.

"We are very excited that so many community members are interested in seeing the great work that goes on inside the gates," said Christine Mixan, who coordinates the tour program for the Public Affairs Office. "The new tour offers members of the public a rare glimpse at some of the Laboratory's most exciting programs — and from the responses we received back from our visitors, they've really enjoyed it."

The new community tour was developed earlier this year as part of the Lab's 50th Anniversary celebration and as a way to provide the public with a better view of the Laboratory. Prior to May, the tours took visitors to only one or two buildings inside the Lab and the route had not been updated in several years.

The Public Affairs Office decided to give the tour program a totally new look, revamping the program



JULIE KORHUMMEL/NEWSLINE

Barbara Costella Anderson shows a computing artifact to Richard Pierce of Detroit during a community tour stop at the Lab's Computer History Museum.

to cover the varied projects now being developed at the Lab.

The new tour now takes visitors first past the National Ignition Facility (NIF) building — and will soon take people inside the NIF visitor's facility once it is completed. Visitors also get to see the National

Atmospheric Release Advisory Center, the Biology and Biotechnology Research Program, the Computer museum and finally, ASCI White. They also drive by the fire station and the old Navy barracks to help explain some of the history of the lab.

The new format for the community tours is quite elaborate and it has been well received by those who have attended thus far, Mixan said. After every tour, visitors are asked to fill out a questionnaire and comment on the new program. Visitors have written comments such as, "I'm glad to see the Lab is working for the general public" and "I had no idea of the breadth of programs at the Lab prior to this tour."

The program attracts the general community, local college groups, retiree groups and even Lab employees who want to see what else the Lab is doing outside their own areas of expertise, Mixan said.

Most importantly, the Lab wants the people in the community to come see what is going on in their neighborhood.

"The bottom line for this program is to make people feel good about being our neighbor," Mixan said.

Those who wish to come and visit the Lab must apply two weeks ahead of time. All visitors must be over the age of 18. The two-hour tours are usually offered every Tuesday and Thursday morning. For more information, visit the Public Affairs Website at <http://www.llnl.gov/PAO> or call 4-6575.

BRIEFLY

IPAC, BioSTAR host briefing

The Industrial Partnerships and Commercialization (IPAC) Office and BioSTAR will host a network briefing with guest David Gilbert, BioSTAR's associate director for Industry Outreach, and other representatives from the UC Discovery Grant Program, Thursday from 2-4 p.m. in Bldg. 170, room 1091.

The briefing will discuss how to find available research dollars to enhance both industry and Laboratory researchers' understanding of and participation in the UC Discovery grant program.

For questions about the UC Discovery grant program, contact David Gilbert, at 510-643-5542,

dgilbert@uclink.berkeley.edu or go to <http://www.ucdiscoverygrant.org>.

To participate, RSVP by today, to Connie Pitcock, 2-1072 or pitcock1@llnl.gov.

Business Services Functions Relocating

The business functions currently located in Trailer 3427 are moving today.

On Monday you will find them in Bldg. 551W on the first floor, northeast corner in Suite 1300. Services that are moving are: Travel Services (Maritz representative, air ticket pickup and travel reimbursement); corporate travel card; conference and off-site meeting planning; spe-

cial disbursements and petty cash reimbursements; memberships; food services; emergency meal reimbursement; and drivers qualification files.

The L-code (L-456) and phone numbers will not change.

Civil disobedience at Westgate

A morning prayer vigil Tuesday by anti-nuclear demonstrators at the Westgate entrance escalated into four arrests for blocking a public roadway. Organizers, in their prior communications with Lab security officials, had not mentioned any intent for arrests to occur.



AUTOMOBILES

LHS New Yorker sedan, 57,000 miles, with new tires. KBB is \$8990. Reduced for a quick sale \$6900. 925-447-2282

1993 - Pontiac Bonneville, forest green, power windows/ locks/ seat/mirrors, CC, resent tires, A/C, AM/FM-CD, 134K mi., mechanically sound, \$4,200 OBO. 925-828-7021

1999 - Ford Escort ZX2 Tan Coupe. Only 12.5k miles. Excellent condition. Kelly Blue Book \$9835. Will e-mail pics. 707-374-4826

1994 - Plymouth Grand Voyager SE minivan. V6, white, 128000 mi. \$4000 925-820-5807

1974 - 1974 Mercedes-450 SL, AT, A/C, PS, PW, exc. cond: 139k miles: hd and soft top: \$8,200 or offer. Pls call cell # 925-200-5261. 925-373-6260

1984 - Subaru wagon - works well, reasonable get around town car: engine, tranny, accessories, body, tires all good; paint fair: \$500.00 925-449-1065

1994 - Honda Civic - in fair/good condition, 5-sp, Heat and A/C, good commute car. \$4500 or BO. 209-537-2961

Invader Q26 racing cart, ex cond, with 100cc Yamaha engine, computer (tach, temp, lap time), different gearing, extras, \$3,000. 925-443-8585

1999 - Toyota Corolla VE, auto, A/C, cassette, alarm. Silver, clean, 80k hwy miles, very reliable. \$7000 OBO. 510-663-7111

1999 - Honda Accord 4-Cyl. 2.3L ULEV EX Sedan 4D (Gold) Automatic, ABS, Moon Roof, 43,000 miles, excellent condition, \$14,300 O.B.O. 510-664-0792

2000 - Honda Civic EX, 2 dr coup, Silver, Auto, PW/PS/PL, Sunroof, CD/AM/FM, Custom rims & tires, Tinted windows, Excellent condition, 29k, \$13,900 209-832-2862

1997 - Mitsubishi Eclipse, excellent condition, power everything, sunroof, CD/Player, new clutch and transmission. \$10,500 or take over payments \$321/month. 925-449-2084

1997 - Honda Civic EX VTECH, 5 speed, White 2-door coupe, 75k miles. A/c, moonroof, brand new clutch and rebuilt transmission. Excellent condition, \$8,750. 925-373-8416

1996 - Volvo 850 Sedan. Runs great. Edmunds FMV is \$8,000. Must sell, asking \$7,000 obo. 925-454-9253

1993 - Plymouth Acclaim. 70K miles, 4 cyl 2.5 L engine, automatic transmission, power steering, cruise control, newer paint, Michelin tires. \$2425 obo. 925-292-1624

1995 - GMC Safari Van, Extended 8 Pass, AWD, Great for Skiing! Loaded, SLT trim, new tires, brakes, tuneup, 123k miles, high book \$10,600, \$7900/B.O. 209-599-4644

1997 - BMW M3, 2-dr coupe, 5 sp, white, like new cond, warrently expires 2004, 34K low miles, garaged, CD changer w/ HK sound, computer, loaded. \$31K 925-443-8585

1993 - Toyota Corolla 4Dr in good condition-AM/FM Cassete, A/T,A/C 134k freeway miles \$3900/offer. Call eves: 925-828-6568

1996 - LHS New Yorker sedan, 57000 miles, loaded, with new tires. KBB \$8990, reduced to \$6900. 925-447-2282

1995 - Toyota Tercel 4Dr DX, A/C, AT, PS, CD, New Wheels/Rims, Green, records, 97K Miles, \$4000 2-4487 or 209-239-2657

1993 - Ford Thunderbird LX 2-dr, V6, 47K original miles, new tires, automatic, power windows & seats, A/C 925-447-4262

1989 - Lincoln Continental Signature Series, Loaded, climate control, ABS, Bose stereo/CD-cassette, airbags, looks, runs and rides great. \$1950/offer 209-599-5056

1996 - 1996 GMC JIMMY SLT: metallic red; 55K; V6; A/C, auto, all power, leather seats: cassette/CD; Excel cond; office 650-723-9526; home 650-322-3480

1998 - must sell! 1998 toyotta sienna 88k miles 13k obo. two tone green/gray ext, multi color beige int ex cond, very dependable family trips were great! 209-544-1207

1996 - Ford Escort LX, 2Dr hatchback, spoiler, AT, AC, CD, Alloy wheels, low miles, \$3900. 209-835-6478

1994 - Honda Accord LX. Grey, 4 door, automatic, very clean! 1 owner, CD changer, 110k miles. \$7,000/obo. Must sell! 925-362-8073

1997 - Explorer XLT, V8, Excellent condition, 85K miles, tires/brakes/shocks are fine, pwr everything, cruise, 6 CD changer, privacy glass, \$11,000 925-831-9087

1999 - Toyota Camry, Bronze exterior, CD, power seats, locks, windows. All reg. maintenance. 103,000 highway miles, \$9400.00 or best offer. 209-406-9305

1994 - Chevrolet Blazer LE 2 door. Vortec V-6, 4Speed Automatic overdrive. Antilock brakes, A/C, PW, PL, 94k miles. \$3900 209-478-7397

1994 - Jeep Wrangler, 95 Engine, 4 Cylinder, Hard Top, Off Road Tires, 5 Aluminum Wheels, Premium CD Player, \$6800.00 925-373-1166

2000 - Ford Mustang GT Convertible, Black, Excellent condition 35K miles, \$20,500 or BO. 925-373-9420

1992 - Ford Taurus, blue, approx. 86K miles. Good condition. \$3100. 209-836-1267

AUTOMOBILE ACCESSORIES

Rancho skid plate. Fits late model GM trucks with lift. Like new with less than 750 miles and no dings. \$350 at Cal Truck Works. Sell for \$250 209-365-0412

Ford Engines. Have sat in storage for up to 30 years. Machined and never re-assembled. (2) 289s (1) late 50s 332(?). best offer, 209-402-5643

1984 Honda factory repair manual and Chilton repair manual. These books are very useful no matter what model or year Honda you have. \$10 925-484-4099

Steel wheels, 16 inch 6 lug off 1998 Chevrolet 4x4. \$50 925-516-8339

1990 Toyota tailgate, new in box \$80 & Ford 4 lug Mag wheels, 13-in. & 14-in. 3 sets - Make Offer 925-634-8523

Bed mat, ProTecta heavy duty, Fits short bed trucks. It is like new, only used for 3 months. \$60. 209-365-0412

BICYCLES

Diamondback Viper BMX-style gray bike, 20in wheels, \$75; Red training bike, 16in wheels, \$25. 925-443-3106

Youth, BMX, New, \$50 925-447-8557

Wide bicycle seat to make your ride more comfortable. \$5.00 925-484-4099

Miyata touring bike - 54 cm, 18 speed, includes cyclecomputer and accessories, great condition. \$350/b.o. 925-454-0877

Winchester bike trailer for towing 2 kids. Excellent condition. Safety features. Folds away for easy storage. \$150 or best offer. 209-832-0913

Bike, ladies, Silver Canyon 10 speed bike, 24 inches. Hot pink with blue speckles. Excellent condition. \$60. 925-648-0671

Cannondale Mtn Bike, CAAD3 frame & DD50 Head Shok(both yellow), XT & XTR components, Mavic rims, Ritchey bars & clipless pedals, Sachs grip shifters. \$600 209-365-0412

BOATS

12-foot aluminum boat with current registration. \$300 925-294-9810

Jet Ski Kawasaki 1989. Hardly used always stored indoors just like new original owner \$1800.00. w/trailer \$2200.00 925-699-7619

28ft Buccaneer sailboat, trailer. 1975, all fiberglass, stove, head, ice box, sleeps 4. 9.9 outboard. \$2500 OBO. 925-684-9729

CAMERAS

Minolta flash unit for 35mm camera. Can be adjusted to bounce the flash off of the ceiling. \$20.00 925-484-4099

ELECTRONIC EQUIPMENT

Electric typewriter --Olympia Report Deluxe-- with carrying case. \$25. 925-454-8827

Typewriter: IBM Selectric II, self-correcting. Black, good condition, \$25. 925-462-6615

Gateway monitor EV700. 15inch, 2yrs old, works perfect, manual included, too big movie with it. \$250 OBO. 254-371-7321

Sony DTS Digital Theater Stereo Model STR-502P, 550 watts, 5.1 Channels separate sub-woofer output, Less than 1 year old & warranty. \$250 or BO 925-634-8523

GIVEAWAY

1974 - Karmen Ghia body and chassis, free to good home, you haul. 925-447-4345

Refrigerator - About 24 cubic foot, frost-freeze top freezer, harvest gold (yes it is that old), works fine. FREE, you haul. 925-830-8640

Great for college. Sofa Sleeper. Tan, brown, white striped. Approximately 6.5 ft long. 925-443-4413

Moving boxes, assorted sizes. Please call between 5:00 and 9:00 PM. 925-634-1853

1974 Karmen Ghia body and chassis, free to good home, you haul. 925-447-4345 925-447-4345

20-yr new Sealy Posturpedic Twin mattress set, good for child or guest. You haul. 925-606-8012

Oven/Microwave GE good condition, black, victim of remodel... in Brentwood 925-516-2446

HOUSEHOLD

Graco Stroller/Infant Seat Combo, navy pattern.

\$30/OBO. Little Tykes electronic kitchen w/sound effects. \$30 925-513-4743

Lazy Boy Recliner for tall person, Hunter Green Leather in EXCELLANT condition. \$650.00 O.B.O. \$600 O.B.O. 925-443-1571

MOVING SALE - 1419 Maplewood Drive, Livermore. Saturday, Aug. 10, 7:00 - 1:00. 925-606-1944

Two 24inch light oak chair-back bar stools, good condition, Paid \$90 each, Sell \$35 each 925-998-2620

Recliner, nice condition, arms have storage, 6 years young, medium blue. \$75 OBO 925-447-4797

Double bed futon with finished pine frame. \$225. 925-600-1817

Mattresses, Bunkie style, almost new, great condition, \$35 ea. or \$60 for two. 925-292-0348

Refrigerator: Maytag 23 cubic-ft side-by-side, almond. Adjustable glass shelves, 1-1/2 years old, excellent condition, \$950. 925-461-5033

Extension ladder, standing height 32 feet, wood, easily separates into two, \$75 925-443-5549

Beautiful dining set, 42x72 glass table, 4 fabric chairs. Excellent condition. Email photograph available. \$300 obo. 925-447-8845

Computer roll around desk. Black & grey. Has overhead hutch area for CDs, pull out keyboard tray & space below for tower & printer. Asking \$50 OBO. 209-833-8306

Trundle bed and frame, white with brass accents. \$75. Sliding shower door for tub. \$35. Call evenings 925-447-3780

Two drawer, locking, oak file cabinet. Very good condition. \$100 925-373-9128

Childcraft Oak Crib & Change Table. Light finish. Beautiful style. Very good condition. \$150 (Cost \$600 new). 209-833-9141

Dishwasher (black) new racks, works great. \$100 925-516-2446

Little Tikes playhouse, 4ft. X 4ft. X 4ft. \$30.00 925-447-1009

LOST & FOUND

Lost: Gold braided wedding ring. Lost near B482. Reward. Sentimental value. 925-846-5722

MISCELLANEOUS

Graco Stroller/Infant Seat Combo, navy pattern. \$30/OBO. Little Tykes electronic kitchen w/sound effects. \$30. 925-513-4743

GYMBOREE girls clothes in sizes from newborn through 9 months: 12 pcs. for \$30. Other baby items and maternity clothes available. Call for info. 925-454-8827

Dwarf Day Lillies Gold \$2ea, Common white Calla Lillies \$2. 625-447-6192

Swamp Cooler, Roof Mount, Good Cond. \$25 925-447-8557

Live on Maui for 1/2-1 year? Fully furnished home - will trade to live in your home in the Livermore or Pleasanton area. 808-874-9100

Doobie Brothers Tickets - 3rd Row!! August 31 at Noctuli Harbor. \$75/pair. 925-462-7664

Vegas vacation for two people. Round trip & 2-night hotel. Departs any Tuesday. Good for 1 yr from time of purchase. \$350 925-899-8438

Antique claw foot bathtub ready to install very good condition \$175.00. Lavendar pedestal antique sink \$75.00. 925-699-7619

Covered sandbox \$15, Ride-on jeep \$15, Toddler outdoor swing \$10, gymboree rocking chair \$10, wood puzzles \$5 each. 925-454-0877

Oakland As vs Chicago White Sox Sunday, August 18, 1:05PM, MVP seats on third baseline (Section 125/Row 13/Seats 1-4)\$25 each. 925-449-5481

49ERS Exhibition Game Tickets, 8/10 vs. Kansas City and 8/28 vs. San Diego, 4 tickets to each game, \$25.00 per ticket, Sec.52, Row 5 510-656-8454

Little Tikes Playhouse with slide. Cutouts for climbing and large holes for crawling through. Fun for toddlers / small children. \$15 - WWS 510-490-0834

Fisher Price Tent Climber 3ft. high, 4 ft. wide, 3 ft. deep. Great for small children. Good condition. \$35.00 925-447-7190

49ers vs. Kansas City Saturday Aug 10 6:00pm 2 tx available at face value (\$58 ea) Upper Reserved seats 209-544-8540

Sportcoat, mens, Bella Nora brand, Navy. Size 42. Worn twice, paid over \$250 at Nordstroms. \$50. 925-648-0671

HUGE Garage Sale. Too many items to list. 925 Dublin Ave. - LIVERMORE, Saturday, August 10. 9:00 am - 4:00 pm. No early birds please! 925-373-0751

Garage Sale August 10th from 9-12. Toys, childrens clothes, household items, crib w/ change table. Longfellow Ct., Tracy (at Tracy Blvd. & Valpico) 209-833-9141

49er Tickets: 4 seats, Sat Aug 10th 6pm vs KC Chiefs. Great seats mid field row S (19). Reg \$55 each. \$50.00 for all. 925-829-1474

GE built-in oven, large style, black front - \$300.00 GE gas cook-top, 5 burner with down draft venting system - \$700.00 both never used 209-571-3432

Portable drafting board, 15-inch X 19-inch, 17-inch paralel scale. Templates, triangles, compass, dividers, protractor, paper \$20.00 925-447-1009

MOTORCYCLES

1977 - Yamaha XS650, twin low miles, clean \$1,600; Honda MT250, great runner \$950; Honda CL350 collectable museum quality \$2,600 OBO, trade, Milpitas 408-263-8822

Invader Q26 racing cart, ex cond, with 100cc Yamaha engine, computer (tach, temp, lap time), different gearing, extras, \$3,000. 925-443-8585

1983 - Kawasaki GPz 550 10k miles all original never wrecked stored indoors second owner owned by ladies only so far. first year of the uni-track. \$1900.00 925-699-7619

2000 - HARLEY Dyna wide glide, 4900 mi, breather kit, slip fit exhaust, chrome, like new, \$18,500 obo 925-443-4032

2000 - Yamaha YZF426, after market pipe, Pro-taper bars, dirt and paddle wheel, very powerful, recently serviced, good condition. \$4,500 209-652-8345

MUSIC INSTRUMENTS

Crown Reed Organ, fully functional, good condition Early American furniture piece, original finish ca. 1910, \$150/BO. 925-443-3106

Casio Keyboard: 4-Octave Casiotone MT-205, 12-instrument sounds, recording capability, drumpad input, batterypowered. + OpManual/keyboard book. \$30 510-490-0834

PETS & SUPPLIES

Half Pixie-bob kittens, 2 female and 4 male. Includes first shots and exam. Good with children. Ready in four to six weeks. \$150-\$200 ea. 209-835-4281

RECREATION EQUIPMENT

BABY JOGGER II jogging stroller in excellent condition. \$99. 925-454-8827

Croquet Set in a carrying case - used once. \$30. 925-447-8613

Treadmill, StarTracTR901 \$1500, pd \$2500 2yrs ago. Rated -Very good overall- by Consumer Reports. Includes Polar heart-rate monitor. 209-830-6212

Knee Pads, for Skater, Professional. \$40 OBO 925-447-8557

1980 Wilderness by Fleetwood Camping Trailer, 22 ft. Self Contained, Awning, New Style Jacks \$2,000 OBO 209-833-3785

Trampoline, free, must pick up in Livermore. 925-606-8029

Golf clubs and cart - hardly used 7 piece womens beginners set with golf bag and folding wheeled cart - \$100. 925-447-8780

Baby Jogger. Expedition model by Baby Trend. New condition, used only a couple of times. \$110 new, asking \$75. 925-294-5828

RIDESHARING

Express your commute, call 2-RIDE for more information or visit <http://www.r.llnl.gov/tsmp>.

PATTERSON - Vanpool has seats available. Work hours 7:30-4:00. Ride with us and take advantage of the Pretax Transportation Program. Kim 209-892-2118, ext. 2-9502

Manteca - Drive 1 day/wk + 1 Friday/mo. Relax the rest of the time! Save money & stress. GREAT carpool! Ask for Carolyn 209-823-8309, ext. 3-1050

Lafayette - LaMorinda (also Walnut Creek stop at Rudgear Rd) Luxury Vanpool (reclining seats, reading lights) 8-4:45, \$100/mo (pretax reduction available) David 925-943-6701, ext. 2-3005

Orinda - Carpool from Lamorinda (Highway 24 and St. Stephens) needs 4th rider/driver. Lab hours 8:10am to 5 pm. 925-253-0498, ext. 2-9823

Manteca - Rider/Driver for four person carpool. 8-4:30 209-823-5085, ext. 2-0643

SERVICES

Roofing, 28 yrs experience, fully insured 925-454-9200

Custom Motorcyle Paint and Murals, Candys, Flames, Graphics, and Woodgrain. Please call for more info ask for Doug 925-449-9245

Need help finding just the right property in the Central Valley? For free list of whats available in your price range, call! 209-557-2668

CONCRETE: Custom, stamped, colored, founda-

tions, flatwork & more. Lic#787092-B. Over 20 yrs exp. have portfolio. Free estimates. 209-833-8309

Wedding Photography: 21 yrs exp. Medium format cameras used, not 35mm. You keep the negatives. Must see work. 925-829-1474

SHARED HOUSING

Rooms for rent, new home. 3 available. \$375 per month + Util. and deposit. Full privileges. Home (209) 832 4335. Lab Ph. 2-5463 ex.2. 209-832-4335

Livermore - Room for rent: Share 4 bdrm house only 1.5 miles from Lab. \$550 - \$650/month inclu. cable and utilities. Partially furnished. Friendly housemates. 925-216-7286

TRUCKS & TRAILERS

1992 - mazda ext. cab 170k runs and looks great lowered a/c 5spd \$4000.00 obo 209-574-0939

1980 - Classic gooseneck stock trailer, good condition. 18ft. steel, call for more details, \$2500 209-832-7655

1994 - Chevy Silverado 1/2 Ton 4WD, Extended Cab, New Tires, Flowmaster Exhaust, Power Rear Slider, Chromed Rims, Custom Seats, 120K miles, \$10,500 OBO 209-833-3785

1985 - Toyota van; great transportaion, room 4 folks & gear; mechanically sound: new brakes (&r), new master cylinder & rear cylinders \$1500.00 925-449-1065

1989 - CHEVY S-10 PICKUP RUNS GREAT 4 CYL. 2.3L GOOD COND. \$1800 209-368-4291

1937 - Chevy pickup, street rod. All steel, runs and looks great. 350V-8, 350 trans, Must II IFS. A/C, P/S, call for more details and info. \$17,

NEWS OF NOTE



Tour of duty at LLNL gives cadets R&D experience

By Jimm Spannagel

NEWSLINE STAFF WRITER

Six years ago, Preston Carter, an engineer working on the Hypersoar project, enlisted the help of some U.S. Air Force Academy cadets.

Realizing the potential benefits of such a resource, he approached the Lab's Science & Technology Education Program coordinators with a suggestion that they devise a program to bring service academy cadets and midshipmen as well as students from the Naval Postgraduate School to the Lab. Modeling a similar program at Los Alamos National Laboratory, LLNL created the MARA (Military Academy Research Associate) program.

In its five years, LLNL's program has grown beyond all initial expectations. MARA brings students not only from the major service academies (U.S. Military Academy at West Point, U.S. Naval Academy at Annapolis, and U.S. Air Force Academy at Colorado Springs), but from the U.S. Coast Guard Academy, U.S. Merchant Marine Academy, Virginia Military Institute, the Citadel, and others.

According to MARA coordinator Barry Goldman, the program has significant room for growth by not only increasing its number of internships (the program currently supports about 20-25 service academy students per year) but in supporting similar opportunities for service academy faculty members.

Much to the credit of the MARA program, Goldman notes, is an offshoot program for Reserve Officer Training Corps (ROTC) students who attend civilian universities. The ROTC internship program is steadily growing and has room for expansion as well.

Like other summer internships, service academy students learn of the Lab's opportunities for summer interns; online, they can submit interest forms through MARA's Website citing departments or projects in which they would like to work.

Once applicants have submitted their requests, the MARA staff compiles a list of names and interests that it disseminates to managers across the Lab along with publishing a *NewsOnLine* announcement. The internships are created by matching students who have specific project interests with project teams.

Approximately 25 percent of those who express interest receive internship appointments to the Lab, Goldman said. The difficulty, many times, in hosting service academy students is simply that due to their military training duties during the summer they only have four to six weeks available for internships.

Despite this potential setback, Goldman cites an exceptional learning curve and the support of Lab managers and researchers — many of whom are academy graduates, former professors or retired military personnel — as great sources of the program's success to date.

Increasing awareness of the Lab at the service academies by word-of-mouth, faculty endorsements and recruiting trips will expand the applicant pool both in size and quality, Goldman noted.

To some service academy students, however, an internship's benefits go beyond a four-to



BARRY GOLDMAN/STEP

Jodi Greenfield of the National Atmospheric Release Advisory Center explains computer models to participants in the MARA program during a tour of the Lab.

six-week experience. Jeremiah Gruidl, a recent graduate of the U.S. Merchant Marine Academy and 21-year-old native of Claremont, sees his ongoing experience at LLNL as a great segue into his desired career.

Earning a B.S. in logistics and intermodal transportation, Gruidl, who is working on the Transportainer Project, offers a strong set of knowledge and ideas to his project team. The goal of the project is to devise new ways to detect nuclear materials being transported in shipping containers through testing different container materials with various packing scheme models. Ultimately, the project seeks to be able to test containers in transit, preventing them from becoming bombs.

Gruidl came to the Lab with the intention of learning what steps are being taken to combat the problem and finding a way to help. "I still have a lot to learn about the technical implementation of the systems we are developing, but I have a lot to offer with my educational background...what I like most about working with this team is that my input matters," Gruidl said.

He hopes to extend his internship for at least six months. In the long term, he plans to attend graduate school and seek permanent employment with LLNL or the Transportation Security Administration, a sector of the Homeland Security Administration.

For Susan Gormley, a recent graduate of the U.S. Naval Academy, an internship at LLNL represents something different. Gormley is working in Z Division as an analyst for a project that seeks to identify security weaknesses in radiation detection in border control, airports, and seaports in the former Soviet Union.

In identifying where radioactive material may be easily smuggled as well as keeping tabs on nuclear power plants, the United States is able to lend a great deal of aid for both safety and security measures that more closely resemble American standards.

With a political science degree under her belt and a naval career in her immediate future, Gormley came to the Lab to "see how the civilian side of the government aids DoD through providing intelligence."

Using her political science theories and modeling techniques, she is able to analyze more real-

istic aspects of states, as well as the United States that she did not have the opportunity to do in the classroom.

"What impresses me most about Z Division is the synthesis of diverse functional backgrounds working together; everyone brings something different to the table," she said.

Understanding how the Lab functions in terms of providing intelligence information to the military will be in the forefront of Gormley's mind as she serves in the U. S. Navy, "I have a much greater appreciation for how many hours of analysis goes into one military action," she added.

When her internship ends, Gormley will serve on the U.S.S. Coronado for two years before attending nuclear reactors school. Upon completion, she will serve a two-year tour on a carrier managing the operation of a nuclear reactor. Beyond that she hopes to attend graduate school to study international relations and

intelligence.

While the majority of service academy interns work in the "hard" sciences on technical projects, there are opportunities for those with an educational background in the humanities.

Michael Izzo, a 22-year-old senior and sociology major at West Point, decided to come to the Lab for a four-week internship instead of taking extra leave time. "I wanted to get a different experience than was possible at the Academy...I wanted to get a taste of a civilian work environment while getting a chance to explore the West Coast," Izzo said.

Working in the Public Affairs office, Izzo did not work on any specific project but rather had the opportunity to experience many different facets of Public Affairs. He wrote articles for *Newsline*, shadowed public information officers, and even led a project for the Environmental Communications manager in organizing and cataloging the Lab's Environmental Repository.

What Izzo enjoyed most about working in Public Affairs was that the assignments he was given offered him the chance to work in an environment that was not controlled and forced him to think outside of the obvious parameters — something he has not always been able to do in the classroom.

Upon graduation from West Point, Izzo will be an infantry officer in the Army where he will decide whether or not to make the military a life-long career.

According to Goldman, the relationship between the Lab and the cadets and midshipmen is symbiotic, both during the internships and in the long run.

"Cadets and midshipmen gain a greater awareness of and appreciation for what LLNL does and how heavily involved it is with DoD," notes Goldman, "we hope that years from now as influential officers and decision-makers, they'll help the Lab with funding for projects and come back to the Lab to work after their military service."

Jimm Spannagel, 22, a senior at West Point, interned at the Lab in the Public Affairs Office. Upon graduation, he plans to pursue military intelligence or armor as his branch.



THE BACK PAGE

MERCED

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Lab and Merced College that provides technical training internships for university faculty.

Don Correll, director of the Lab's Science & Technology Education Program, noted, "These Merced College sabbaticals at LLNL are one of the many education outcomes from the 2000 MOA between Merced College, UC Merced and LLNL to invest their respective resources to improve science education in the Central Valley. With the addition of the Edward Teller Education Center, located at the Department of Applied Science campus adjacent to the Lab, UC Davis has also added its resources to similar endeavors."

Jay Mayhue, a professor for Merced's Computer Aided Design program, interned in the Geographic Information System group, gathering data for the Nuclear Regulatory Commission (NRC) and then formatting and merging the data for NRC's relicensing Website. Mayhue also created topographic maps.

"He learned so quickly, I was amazed," Mayhue's supervisor, Lynn Wilder said. "He was like a sponge, just soaking all this up."

Tim Wennberg, an instructor in Merced's Laser Electro Optics Technician program, worked for the National Ignition Facility, working on a project designed to experiment with potential NIF optics.

"It was great getting to work with people who are constantly working on cutting-edge technology," Wennberg said. "I could ask them any type of question and they'd have an answer for it."

Wennberg also said that the high levels of optical knowledge that Lab scientists and technicians



STEPHANIE ESPOSITO/NEWSLINE

Tim Wennberg, an instructor at Merced College, worked at the Lab this summer on a project experimenting with potential NIF optics.

have, impressed him. "Some of that knowledge can't help but rub off on me," he joked.

Besides the benefit of working with and having technical questions answered by Lab scientists, the professors said they were able to make a lot of contacts within the Laboratory.

"This was definitely a positive experience and has helped open the door for making connections with people who work at the Lab," Kain said.

The partnership between the Lab and the college will also offer Merced instructors some of the out-dated Laboratory equipment no longer being used for experiments or research, but which would be helpful for instructors to use in the classroom.

One of the main purposes of this internship was to allow these professors to take the information, skills and techniques they learned throughout the summer and bring it back to the students in their respective programs.

Wennberg said that the skills he learned will help him to better train his students to go into the optics field and work on the same types of projects currently underway at the Lab. He said he plans to set up smaller, but similar experiments for his classes.

"This is like a golden bus that has stopped in the valley," Wennberg said about the partnership. "This is such an amazing opportunity for the students. They don't usually get involved with this stuff, but now they can see all the things they can do within this field."

Although the professors will pass along all the information they learned while working at the Lab to their students,

Kain admitted that by the end of the six weeks, he was only just beginning to truly understand and explore his project of developing diagnostic tools.

"There was a lot of trial and error in the process," Kain said. "But I would love to come back...it was a very positive experience."

Wennberg agreed. "This was an eye-opening experience for me," he said, adding that he also plans to return next summer.

CORAL

Continued from page 1

which grow continuously for hundreds of years, tell a story of how key variables such as temperature, nutrients and processes such as water mixing affect the climate in the region.

"These corals are like the old growth redwoods of the ocean," Guilderson said. "They are able to tell us how the ocean has changed over seasons to millennia."

Going down as far as 3,800 meters to reach the ocean floor in the submersible Alvin, the research team recorded 160 hours of videotape and gathered more than one ton of sediment and coral samples.

The information from these studies ultimately will lead to a better understanding of the fundamental causes of decadal climate variability.

Previously observed climate in the North Pacific

ic shows that the winter sea surface temperature and sea level pressure patterns undergo significant changes. It has been described as a persistent warm phase of El Niño. This warming of the ocean occurred in two distinct phases during the last century: from 1925-1946 and again from 1977-1990s. A cooling phase occurred from 1946-1976.

Guilderson said these warm phases have a profound effect on ecosystems. Namely, biological productivity is enhanced in the Gulf of Alaska and reduced along the west coast of North America during the warm phases and vice versa during the cooler phases.

"The relationship between ecosystems, climate and ocean conditions in the Gulf of Alaska provide a natural laboratory to explore biogeochemical archives in deep-sea corals and sponges," he said.

While the corals and sponges can tell the story of the more recent past (at least the last few hun-

dreds of years), the sediment samples tell a longer story, albeit at lower resolution.

"With the core samples, you go back and get a longer perspective of climate variability and the entire ecosystem," he said.

Ultimately, the research team will use the Gulf of Alaska data, which is representative of a much larger region, to reconstruct North Pacific ocean processes on decades and centennial time scales. This reconstruction will help describe the natural variability of the North Pacific in relation to future climate change and resource management practices.



PEREGRINE

Continued from page 1

stages of developing the Minerva method and expect it to be available in a few years.

Minerva is a treatment planning system dedicated to emerging forms of radiation therapy, including molecular targeted radiotherapy, which is a type of treatment that can target metastasized cancer, or cancer that has spread from its original site.

"Metastatic cancer kills 35,000 Americans every month," Hartmann-Siantar stated in her presentation, also noting that 70 percent of all cancers are metastatic.

Using this targeting method, Hartmann-Siantar said that scientists can inject molecules of radiation, specifically diagnosed for individual patients, into the body where the molecules then attach themselves onto the spreading cancer cells. She also mentioned that one of the positive results of target

therapy includes low side effects compared to the effects caused by chemotherapy treatments.

Research for PEREGRINE, the Monte Carlo-based dose calculation method for treating cancer patients began in the early 1990s, was licensed to the Nomos Corp. for distribution in 1998 and received FDA clearance in 2000.

Although many in the scientific field believed that PEREGRINE would take decades for any significant progress to happen Hartmann-Siantar said PEREGRINE is currently installed and being tested at centers in the United States, Canada, Europe and Japan.

The Glenn T. Seaborg Institute sponsored the lecture and was held as part of the LLNL 2002 Cancer Awareness Campaign, which runs through August 29. The primary focus of the campaign is to develop awareness of cancer-related issues, cancer-related research and new technologies, treatments and prevention.

Newsline
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